

HB 2014 Abstract

Alexander Konobeev

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AUG-14
14:35
(GMT)**Classification** Instrumentations and Beam Material Interactions**Modified** 20-
AUG-14
12:46
(GMT)**Presentation** Invited
Oral**Speaker:** Alexander Konobeev**Paper ID****Author(s)** Alexander Konobeev, Ulrich Fischer (KIT, Eggenstein-Leopoldshafen)

Abstract The evaluation of radiation damage and gas production rates in irradiated materials is a challenging task combining the modelling of the various underlying nuclear reaction processes, the simulation of the material behavior, and taking into account, as far as possible, experimental data. This talk presents a brief overview of molecular dynamics and binary collision approximation model simulations performed over the last years for structural materials for the estimation of the number of defects produced under irradiation. The calculation of recoil energy distributions using a Monte Carlo based intranuclear cascade evaporation model (INC), deterministic pre-equilibrium exciton evaporation model (PE), and evaluated data files is discussed. A special attention is given to the evaluation of gas production cross-sections using nuclear models, experimental data, and systematics predictions. Results of calculations using popular INC and PE based codes, including CEM and TALYS, are compared. Perspectives of the use of the evaluated data files for dpa and gas production cross-sections at intermediate and high energies are discussed.

*Word Count: 162 Character Count: 1124***Footnote****Funding Agency**

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03-SEP-14 11:30 (GMT)

SPMS Author: Matthew Arena — Fermi National Accelerator Laboratory

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